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the first to use this material, has many thousands. The varnish to be used is what is called the "pale copal," and its consistency ought to be that of oil. It is much pleasanter to use than Canada balsam, does not make bubbles, and its refractive index is not very different from that of balsam, and does not interfere with the solution of diatom markings. I have of late made many preparations in copal, dispensing with the cover-glass altogether. The drop of copal is placed on the diatoms and heated lightly over the spirit-lamp. It soon takes the consistency of amber, and is hard enough to sustain wiping and brushing with a soft brush with impunity.—*Fulien Deby, C.E., from the Journal of the Queckett Microscopical Club.*

IMPORTANCE OF STATING MAGNIFYING POWER USED.—Mr. F. J. George very properly protests, in *Science Gossip*, against the vague and ambiguous phraseology used in connection with the magnified sketches of microscopic objects. Drawings which are lettered "highly magnified," "much enlarged," etc., are rendered unscientific and absurd by the very words thus used to explain them. It would be more rational, more instructive, and more satisfactory to every scientific reader, if such vague statements were replaced, in every possible instance, by a memorandum of the number of diameters by which the drawing surpasses the size of the natural object.

COLUMBUS, OHIO, MARCH 1, 1881.

EDITOR AMERICAN NATURALIST :

*Dear Sir:*—I am authorized by the president of the American Society of Microscopists to announce to its members, that the Executive Committee have decided by an almost unanimous vote, to accept the invitation received from Columbus, Ohio, and to call the next meeting of the society at that place, on Tuesday, August 9, 1881 (the week previous to the Cincinnati meeting of the American Association for the advancement of Science).

ALBERT H. TUTTLE, *Secretary.*

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### SCIENTIFIC NEWS.

— From advanced sheets of the report of Professor W. K. Brooks, Director of the Chesapeake Zoölogical Laboratory of Johns Hopkins University, we learn that by the liberality of the Trustees he was enabled to spend a much longer period than hitherto at the seaside, and was provided with a more liberal outfit, including a steam launch which was built for their use in the last spring, at Bristol, R. I., and has proved a very efficient auxiliary. The necessary books, dredges and other instruments were also provided by the University. In addition to the opportunities afforded to three of the members of their own academic staff, three other gentlemen, devoted to the study of zoölogy, were

invited to avail themselves of the scientific facilities of the station.

The laboratory was opened at Beaufort, N. C., on April 23, 1880, and closed on September 30, after a session of twenty-three weeks. It was supplied with working accommodations for the six investigators who were in attendance.

Beaufort was selected for the third season's work because it is the nearest accessible town, south of Baltimore, which is favorably situated for zoölogical study. The advantages of a location in a town are well shown by the fact that the expenses of a session of twenty-three weeks this year were considerably less than those of a ten weeks' session the year before.

The scientific advantages of Beaufort are very great; the most important is the great difference between its fauna and that of our northern Atlantic coast.

The configuration of our coast line is such that Cape Hatteras, the most projecting point south of New York, deflects the warm water of the Gulf Stream away from the coast, and thus forms an abrupt barrier between a cold northern coast and a warm southern one. The fauna north of this barrier passes gradually into that of Southern New England, while the fauna south of the barrier passes without any abrupt change into that of Florida, but the northern fauna is sharply separated by Cape Hatteras from the southern.

During the past season Dr. Brooks worked out the interesting life history of *Leucifer*, and Mr. Wilson that of *Phoronis*, which have been published in abstract in the *NATURALIST*.

Another interesting group which was studied is the *Porcellanidæ*; the least specialized of the true crabs. The adults of our American species are almost restricted to our southern waters, although the swimming larvæ are carried north by the Gulf Stream. Within the last two years two northern naturalists have studied these floating embryos upon the south coast of New England, but as they were working upon stragglers so far from home, their accounts are incomplete and somewhat contradictory. The advantages at Beaufort enabled them to contribute towards the solution of this confused subject by raising one species of *Porcellana* from the egg.

They also raised six other species of crabs from the egg, and made drawings of the more important stages of development. One of the species which was thus studied is the edible crab. Its metamorphosis has never been figured, and although it presents no unusual features, its economic importance gives value to exact knowledge of its life history.

Mr. Wilson also studied the development of one species of *Pycnogonida*, a group of very peculiar *Arthropods*, distantly related to the spiders. As he has paid especial attention to the systematic study of this group, and is now engaged in describing the *Pycnogonids* collected in the Gulf Stream by Mr. Agassiz, the

opportunity to study them alive in the laboratory has been a great advantage to him.

Another important investigation is the study, by Mr. Wilson, of the embryology of the marine Annelids. Although the representatives of this large group are abundant and widely distributed, little was known of the early stages of their development until he procured the eggs of several species and studied them at Beaufort. This investigation has shown, among other things, that the accepted division of Annelids into two great groups, the Oligochæta and Polychæta, is not a natural method of classification. The work upon the development of marine Annelids was supplementary to an investigation which Mr. Wilson carried on last spring at Baltimore, and which he will continue this winter, upon the development of land and fresh-water Annelids.

As much time as possible was given this season to the study of the hydroids and jelly-fish of Beaufort. The life history of several of them were investigated, a thorough anatomical study of some of the most important forms was carried on, and nearly two hundred drawings were made. It is almost impossible to complete a study of this kind in a single season, but if one or two more summers can be given to the work, we have every reason to hope for valuable results, for although the North Carolina coast is the home of many species which are only found as stragglers upon our northern coast, and of other species which are not known to occur anywhere else, and of some genera and families which are new to the North American coast, this field has suffered almost total neglect.

Nearly three months of the time of two members of the party, Mitsukuri and Wilson, were given to the study of the habits, anatomy and development of *Renilla*, a compound Polyp very much like that which forms the precious coral, but soft and without a stony skeleton. The animals which form the community are so intimately bound together that the community, as a whole, has a well marked individuality, distinct from that of the separate animals which compose it. The compound individuality of *Renilla* is quite rudimentary as compared with that of a *Siphonophore*, and as there is no trace of it in the closely allied *Gorgonias*, it furnishes an excellent field for studying the incipient stages in the formation of a compound organism by the union and specialization of a community of independent simple organisms. With this end in view the anatomy of the fully developed community was carefully studied, and the formation of a community was traced by rearing a simple solitary embryo in an aquarium until a perfect community had been developed from it by budding. During the process of development the law of growth by which the characteristics of the compound organism are brought about was very clearly exhibited, and it is fully illustrated by nearly one hundred drawings.

Next summer there will be room at the laboratory for ten instead of six students. The nature of the results of this and the first and second seasons' work of this laboratory certainly show that scientifically the success is all that could have been expected; and we may expect that if the institution is permanently maintained by the Trustees of the University, the results will be most creditable to American Biological Science. This department is not strong in the United States, and if the Johns Hopkins University can permanently aid in its development, with officers and students so ready to avail themselves of the privileges offered, it is to be hoped that the question of a few hundred dollars will not be an obstacle to the success of the undertaking.

— A bill establishing a Bureau of Animal Industry was reported to the Senate in February by Mr. Johnson, from the select committee on the subject of pleuro-pneumonia and other contagious diseases of domestic animals. It provides for the organization of a bureau of animal economy in the Department of Agriculture. It authorizes the Commissioner of Agriculture to appoint a Chief of this Bureau, who is a competent veterinary surgeon, approved by the National Board of Health, and whose duty it is to investigate and report the value and condition of domestic animals, and also the cause of contagious diseases among them, and provide for the prevention and cure of the same. The Commissioner is authorized by the bill to purchase and slaughter diseased animals, provided the sum paid for them shall not exceed two-thirds the market value of healthy animals, and \$200,000 is appropriated to meet the expenses incurred in carrying out the provisions of the act.

— Major J. W. Powell was, a few days ago, confirmed by the Senate to fill the position of Director of the United States Geological Survey, recently vacated by Mr. King. While our preferences are for Dr. Hayden, the founder of the survey, we will hope the new occupant may be sustained by liberal congressional appropriations.

— Dr. James Lewis, the celebrated conchologist, died on the 23d February last, at his home in Mohawk, N. Y. His malady was one of long standing, and during the later years of his life caused him much suffering. Well known to most conchologists in the United States, the intelligence of his death will be received by them with deep regret. A brief sketch of his life will appear in another number.—*R. E. C.*

— On the 3d of February died the well-known English ornithologist, John Gould, F. R. S., aged 76. He was the author of "A Century of Birds from the Himalaya mountains;" "The Birds of Europe," and "The Birds of Australia," the latter in seven folio volumes and with colored illustrations of 600 species, and many other important works. He had been recently engaged on an entirely new work, "The Birds of Great Britain."

— Lithology has suffered a loss by the death of Professor Emanuel Boricky, who died in January last at Prague, aged 40 years. He was well known for his studies on the rocks and minerals of Hungary and Austria.

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## PROCEEDINGS OF SCIENTIFIC SOCIETIES.

BOSTON SOCIETY OF NATURAL HISTORY, Feb. 16.—Dr. C. S. Minot discussed the question of a common larval type among annelids, mollusks and vertebrates. The president spoke of the carboniferous insects of Great Britain, and Mr. Burgess remarked on the aorta in the Lepidoptera.

March 2.—Mr. Lucien Carr read a paper on sun worship among the North American Indians, and Dr. M. E. Wadsworth one on the history of Prepaleozoic geology in New Brunswick.

NEW YORK ACADEMY OF SCIENCES, Jan. 31.—Papers were read by Mr. B. B. Chamberlain, entitled, Studies in local mineralogy—1. A singular mineral identified; 2. Iron-coated boulders from Brooklyn; 3. The gneiss of New York island; and by Professor Newberry on our coast corals, their relations and geological work (with specimens and lantern illustrations).

Feb. 7.—Mr. A. A. Julien made a communication on the gneisses and diorites of the Greensboro' belt, North Carolina.

March 7.—Mr. G. F. Kunz described the spodumene emerald of North Carolina (Hiddenite), and exhibited specimens.

AMERICAN GEOGRAPHICAL SOCIETY, Feb. 17.—Mr. John Banvard delivered a lecture on the hierology and reading of the obelisks of Egypt, illustrated by charts, diagrams and paintings on canvas, executed from original drawings made by himself while in Egypt.

APPALACHIAN MOUNTAIN CLUB, Feb. 9.—Mrs. Maria E. McKaye read a paper on Lake Dunmore.

STATE NATURAL HISTORY SOCIETY, Feb. 8.—The second annual meeting was held in the State House at Springfield, Illinois. President Worthen addressed the society on the fossil fuels of the United States. Papers and remarks on the archæology of Illinois, especially the mound-builders, were communicated by Mr. W. McAdams, Judge J. G. Henderson, Professor Cyrus Thomas and others. Mr. McAdams then read a paper on artesian wells. Mr. F. S. Earle described the cave-dwellers of Southern Illinois. Mr. W. H. Garman presented the results of studies on the gall mites (Phytopti). Professor C. Thomas remarked on the Palenque tablets. Professor Burrill discussed the subject of *Bacteria pementa*. Mr. D. B. Wier contributed a paper on the grape rot; while Professor Forbes read a paper entitled illustrations and application of the doctrine of evolution. Judge Henderson delivered an address entitled, The ancient Illinois, and finally Professor Forbes read a paper on the English sparrow in Germany, with notes on its autumnal food in Illinois.